

# MISSOURI CONSERVATIONIST

VOLUME 85, ISSUE 10, OCTOBER 2024  
SERVING NATURE & YOU



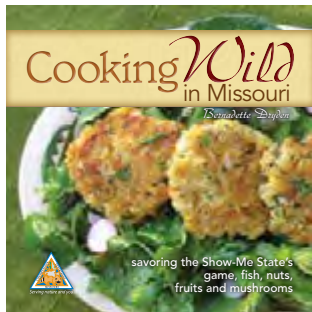


# Discover what's ON SALE NOW



## 2025 NATURAL EVENTS CALENDAR

Keep in touch with the year's seasonal changes. Each month offers a reminder of the state's natural treasures, and daily notes keep you posted on what's blooming or nesting. **01-0368—\$9**



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Whether you hunt, fish, or forage, you'll enjoy this collection of more than 100 delicious, kitchen-tested recipes featuring Missouri's game, fish, nuts, fruits, and mushrooms. **01-0297—\$16**



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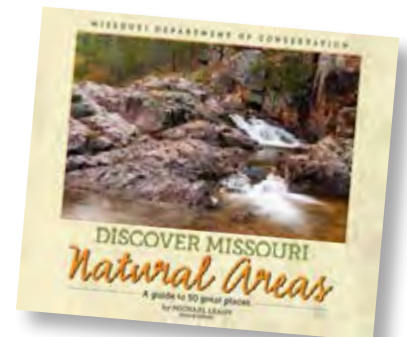


## NATURE NOTES CONEFLOWER JOURNAL

Whether you want to draw or write about nature, this spiral-bound notebook will get you started. Tips on keeping a nature journal from MDC naturalists and blank pages await you in this notebook. **01-0113—\$8**

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This second edition features seven more recent additions to the Missouri Natural Areas System, and it also features updated maps and text for the recently expanded Coakley Hollow Fen. The list of helpful references as well as the list of scientific names have also been reviewed and updated. **01-0295—\$19.95**



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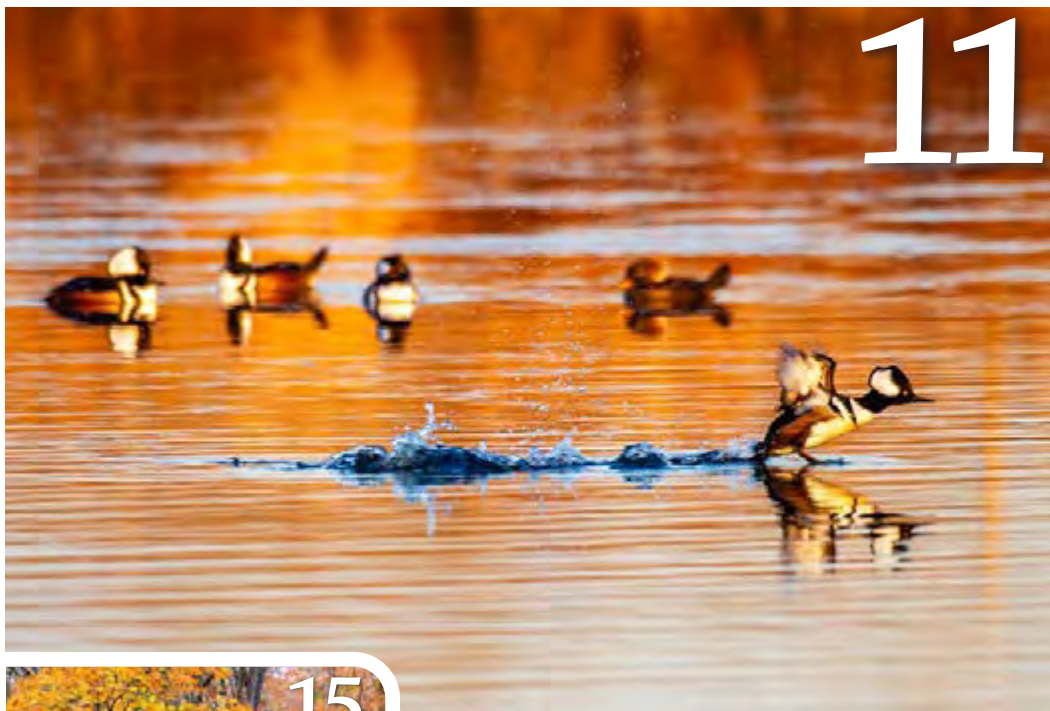
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JOSEPH BERGER, BUGWOOD.ORG

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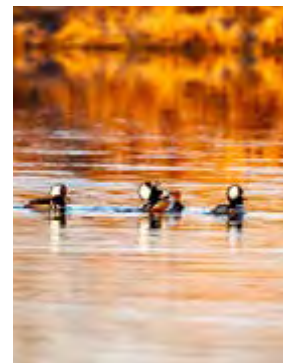
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Muskie

## MISSOURI CONSERVATIONIST



### ON THE COVER

A group of male hooded mergansers

### 📷 NOPPADOL PAOTHONG

300–800mm lens, f/7.1  
1/1000 sec, ISO 1600

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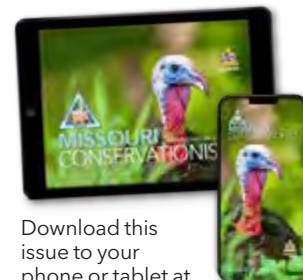
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# Inbox



## Letters to the Editor

Submissions reflect readers' opinions and may be edited for length and clarity. Email [Magazine@mdc.mo.gov](mailto:Magazine@mdc.mo.gov) or write to us:

MISSOURI  
CONSERVATIONIST  
PO BOX 180  
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## EXCEPTIONAL

We enjoy every issue, but the two articles in August, *Beyond the 'Ugly'* [Page 16] and *Investigating Pollution and Fish Kills* [Page 22] were exceptional. I am adding vultures to my list of favorite wildlife.

Bob and Cathy Zinkel  
via email

## VULTURES

What a wonderful article on those skillful updraft gliders, black and turkey vultures. I always stand in awe of their aerodynamics as they gather high above the valleys around my property, socializing in their own mysterious way. Unfortunately, their need to find carrion leads them to the side of busy roadways, placing them in what seems to be their greatest peril. Whenever I approach a group of them feeding on roadkill, I consider the fact that, although they may be great flyers, they are very heavy birds and are ploddingly slow at take-off, so I give them great leeway, slowing down as much as I safely can. They are some of the last great avian scavengers left.

Kenneth Bassett via email

I appreciated the article about vultures in the August issue. I recently found a dead raccoon in our front yard and carried it out to the street gutter. I planned to get on the KCMO website to find out how to dispose of it, but when I went outside, two turkey vultures were already at work. Nature's sanitation department! Your magazine is a highlight each month (along with my MDC Natural Events calendar). Thanks for all you do!

Sarah J. Nettels Kansas City



Black vulture



Turkey vulture

## NATURE CENTERS

We took our grandkids, ages 5 and 8, to Burr Oak Woods Nature Center in Blue Springs. What a fantastic place for inquiring young minds. With so many hands-on experiences to delve into, our kids were occupied the whole time we were there. Our grandson could not get enough of the snake exhibits, and our granddaughter loved the woodpecker displays and the other hands-on activities. The staff were so helpful and ready to answer all our questions. Thanks for a great day for our family!

Jerry and Karla Neal Corder

*The Missouri Department of Conservation has eight education and nature centers located across the state. These places help you connect with nature in a variety of ways — take a walk on a nature trail, learn more about nature through live and still exhibits, or attend a class on a variety of topics, including outdoor skills. These centers are a great way to get out and beat the winter blues. For more information, visit [short.mdc.mo.gov/4JV](http://short.mdc.mo.gov/4JV). —THE EDITORS*

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## Have a Question for a Commissioner?

Send a note using our online contact form at [mdc.mo.gov/commissioners](http://mdc.mo.gov/commissioners).

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The Missouri Department of Conservation protects and manages the fish, forest, and wildlife of the state. We facilitate and provide opportunity for all citizens to use, enjoy, and learn about these resources.





### Want to see your photos in the *Missouri Conservationist*?

Share your photos on Flickr at  
[flickr.com/groups/mdcreaderphotos-2024](https://www.flickr.com/groups/mdcreaderphotos-2024)  
or email [Readerphoto@mdc.mo.gov](mailto:Readerphoto@mdc.mo.gov).



1

1 | White-lined  
sphinx moth  
by **Bill Allen**,  
via Flickr

2 | Rough  
greensnake by  
**Chris Williams**,  
via website  
submission

3 | Gray squirrel  
by **Jamie Davis**,  
via Flickr



2



3



### Want another chance to see your photos in the magazine?

➔ In the December issue, we plan to feature even more great reader photos. Use the submission methods above to send us your best year-round pictures of native Missouri wildlife, flora, natural scenery, and friends and family engaged in outdoor activities. Please include where the photo was taken and what it depicts.



# Up Front

✳ This year marks the 75th anniversary of Aldo Leopold's *A Sand County Almanac*, which is a foundational writing in the conservation movement. Leopold is widely regarded as one of the key founders of the science of wildlife management and had a heavy influence on Missouri's own conservation movement in the 1930s. He became a trusted advisor to E. Sydney Stephens, who was a prominent leader in the establishment of the Conservation Federation of Missouri and one of MDC's first conservation commissioners. Aldo's son, Starker Leopold, was the first manager of Caney Mountain Conservation Area in Ozark County and initiated the early turkey restoration work there and across the Ozarks.

One of the elder Leopold's most significant contributions to society and the conservation community was his vision of a land ethic. Leopold said, "When we see land as a community to which we belong, we may begin to use it with love and respect." This points to the simple truth that caring for people and the land are interconnected.

Leopold also famously said, "To keep every cog and wheel is the first precaution of intelligent tinkering. There are some who can live without wild things, and some who cannot." I fit squarely into that category of those who cannot. So as fall sets in, I hope you'll join me in the outdoors, enjoying the great diversity of fish and wildlife that call Missouri home (see Page 11) and exploring some of our wild places (see Page 15).

**JASON SUMNERS**, DIRECTOR  
[JASON.SUMNERS@MDC.MO.GOV](mailto:JASON.SUMNERS@MDC.MO.GOV)

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## WILDLIFE MANAGEMENT

# Black Bear Population Study

Hair snares play key role in estimating bear population

by Dianne Van Dien

✳ Several decades ago, few black bears lived in Missouri, but today the state's bear population is healthy and growing. To estimate the size of bear populations, biologists look at several factors, but they begin with a simple, low-tech tool: barbed wire.

In what is known as a hair snare, biologists stretch barbed wire around three or more trees and then add scent lure to entice bears to approach. The barbed wire is set so bears need to crawl under or over it, and when they do, strands of their hair get caught. The hair is collected and sent to a lab for DNA analysis. Results show how many individual bears were detected. These numbers are used in population models.

MDC conducted an initial hair snare study in 2010–2011 as black bears started to make a comeback in the state. Hair snares were set along the Missouri-Arkansas border, the area where most bear sightings occurred at that time.

“We take the initial bear population estimate and our survival and recruitment estimates that we’ve



A radio-collared black bear is photographed by a trail camera at a hair snare.

generated from GPS-collared bears and use that data to track changes in the population over time,” explains MDC Bear Biologist Nate Bowersock.

Since 2011, the estimated bear population has grown from about 300 to nearly 1,000. In 2022–2023, Bowersock and staff conducted a new and larger hair snare study across most of the lower half of the state to reflect the expanding population.

“We distributed our hair snares based on radio collar data and bear sightings that we’ve had over the years,” says Bowersock.

The new study will not only provide an updated population estimate but will also look at associations between landscape features and bear densities, which will benefit both management and outreach activities.

“The outcome of this study will help us focus our outreach efforts in areas we expect to have higher bear densities down the road,” Bowersock says.

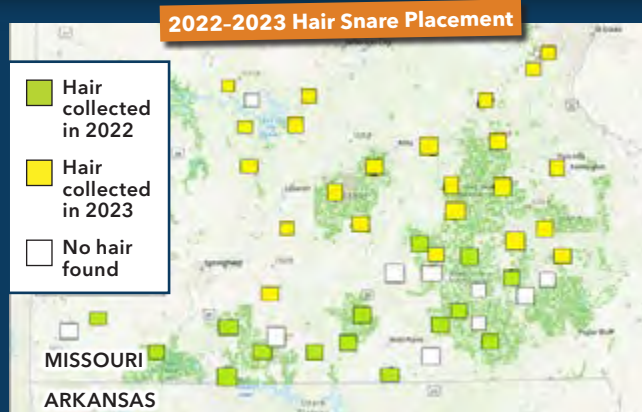
DNA analyses from the collected hair samples are still in progress; results are expected in 2025.

You can help MDC track the growing bear population by reporting bear sightings at [short.mdc.mo.gov/4gF](https://short.mdc.mo.gov/4gF).

## At a Glance

### Hair Snare Study

- Hair is caught on barbed wire when bears pass through.
- DNA testing of hair shows how many individual bears passed through each snare.
- Data is used for population estimates.



About 1,000 hair samples were collected at hair snares in 2022 and 2023. DNA results are still pending.

**Collaborators:** Michigan State University, Mississippi State University, SUNY College of Environmental Science and Forestry



# In Brief

News and updates from MDC



Order seedlings  
now from the  
George O. White State Forest Nursery.

Tulip poplar

## GO NATIVE!

BUY NATIVE TREE AND SHRUB SEEDLINGS FROM MDC'S GEORGE O. WHITE STATE FOREST NURSERY

➔ Need trees and shrubs for your landscape? Go native with seedlings from MDC's George O. White State Forest Nursery. Native trees and shrubs can help improve wildlife habitat and soil and water conservation while also improving the appearance and value of your property.

The state nursery offers a variety of low-cost native tree and shrub seedlings for reforestation, windbreaks, erosion control, wildlife food and cover, and other purposes. The nursery provides mainly 1-year-old, bare-root seedlings

with sizes varying by species. Seedling varieties include pine, bald cypress, cottonwood, black walnut, hickory, oak, pecan, persimmon, river birch, maple, willow, sycamore, blackberry, buttonbush, hazelnut, redbud, ninebark, elderberry, sumac, wild plum, witch hazel, and others. Order early for the best selection.

Seedlings are available in bundles of 10 or increments of 25 per species. Prices range from 40 cents to \$1.17 per seedling. Sales tax will be added to orders unless tax exempt. There is a shipping fee and a \$9 handling charge for each order. Receive a 15 percent discount, up to \$20, off seedling orders with a Conservation Number or Permit Card. Orders will be shipped or can be picked up at the nursery, located near Licking, from February through May.

Learn more from our 2024-2025 *Seedling Order Form*, available in the September issue of the *Missouri Conservationist*, at MDC regional offices and nature centers, or by contacting the state nursery at 573-674-3229 or [StateForestNursery@mdc.mo.gov](mailto:StateForestNursery@mdc.mo.gov).

Order online through April 15, 2025, at [mdc.mo.gov/seedlings](https://mdc.mo.gov/seedlings).

Even if a species is listed as "sold out," you can still place an order for those seedlings because other orders may get cancelled, freeing up inventory. You won't be charged for seedlings unless they are available to ship.



# Ask MDC

## Got a Question for Ask MDC?

Send it to [AskMDC@mdc.mo.gov](mailto:AskMDC@mdc.mo.gov)  
or call 573-522-4115, ext. 3848.

**Q: We have a large grove of pawpaw trees that never produce fruit. From some research, I believe this grove may be one genetically identical organism, thus unable to cross pollinate with other trees. If this is true, how has this grove grown so large? Moreover, how can we get it to produce fruit? In hope of jump-starting the grove's production, we planted new saplings from the MDC nursery. Will this be a cure?**

➔ Pawpaw (*Asimina triloba*) is a small tree or shrub, growing up to 30 feet tall, that produces a cylindrical, aromatic, edible fruit with a bananalike taste and custardlike texture. These trees grow in the dense shade of Missouri's ravines, valleys, and stream corridors.

Pawpaws produce suckers from the roots to form groves and thickets. Their flowers are complete,

containing both male and female parts, but for the tree to bear fruit, it must be pollinated by a genetically different tree. Thus, in natural stands of pawpaw, pollination and seed-set are very poor. Having a grove in a yard or field where they can be mowed under and protected from wildlife will help with seed production and fruit harvest.

Adding genetically different trees might help, but many factors, including a tree's age, health, and weather conditions, influence whether it produces fruit or not. Depending on their location, pawpaws can take 10 to 20 years before they produce fruit. They grow in bottomlands where cold air settles; unfortunately, it doesn't take many days of freezing spring temperatures to kill the trees' tender blossoms.

To learn more about these wild edible pawpaws, visit [short.mdc.mo.gov/4dp](https://short.mdc.mo.gov/4dp).



Pawpaw shrubs



Japanese pavement ants on puffball mushroom

**Q: I have a strange growth in my yard that appears to be a mushroom. The center is a small hole with a mighty army of ants going in and out. Can you tell me more about what's going on?**

➔ Missouri is home to about 150 native species of ants, plus a few introduced species of ants. Both categories are capable of eating fungi like this puffball mushroom, which appears to be a *Calvatia cyathiformis*.

Mushroom-eating is mostly observed in North America's native ant fauna among the woodland species of the genus *Aphaenogaster*, although a few other genera of native ants dabble in the practice, said entomologist James Trager.

However, based on this photo, it seems these ants are one of North America's two introduced species of Eurasian *Tetramorium*, Trager said. The first, *Tetramorium immigrans* from Europe, has been here for at least a couple of centuries and is almost integrated — naturalized — into the native fauna of our continent in places that are subarctic but





Deer scat

experience cold winters. The second, *Tetramorium tsushimae* known as the Japanese pavement ant, is a more recent arrival and is spreading invasively in disturbed open sites from St. Louis to at least three states.

"Indeed, it has decimated the native soil-dwelling ants and other soil arthropods in my yard," Trager said.

He thinks the ants in this photo are likely Japanese pavement ants.

"They are highly omnivorous, eating just about any organic matter that will stand still for them and which does not involve swimming, diving, or climbing tall plants," he said. "It looks to me like they are

excavating their way into the puffball in search of mushroom juice."

#### Q: What type of scat is this?

➔ This is deer scat. Although deer scat is pelleted, it can be smooshed together, depending on what the animal has been eating. During the summer and periods where deer can obtain a high-fiber diet, the pellets will frequently clump. It's also dark brown/black in color.

If fresh, the pellets that make up a mass of deer scat usually can be peeled apart. An additional clue: If this were scat from a bear, coyote, raccoon, or other large mammal, hair and/or seeds would likely be present.



## Luke Armentrout

WAYNE COUNTY  
CONSERVATION AGENT

*offers this month's*

# AGENT ADVICE

If you are preparing for this fall's turkey season, you will want to have at least these four items on the list — a good call to attract a bird, camouflage to conceal yourself from a bird, hunter orange to safely haul decoys in and harvest out of the woods, and a permit. That permit is a little different this year. You will purchase a Turkey Hunting Permit for the fall season, which will cover both firearms and archery turkey seasons. You can harvest two birds of either sex — hen, jake, or tom. Always scout your location before you hunt, be mindful of your surroundings, and be courteous to fellow hunters. Have a safe season!

## What IS it?

Can you  
guess this  
month's  
natural  
wonder?

*The answer is on  
Page 8.*



## INVASIVE SPECIES

# MISSOURI'S LEAST WANTED

*Invasive nonnative species destroy habitat and compete with native plants and animals. Please do what you can to control invasive species when you landscape, farm, hunt, fish, camp, or explore nature.*

## Beefsteak Plant

by Angela Sokolowski

Beefsteak plant (*Perilla frutescens*), an invasive annual in the mint family, grows 1–6 feet tall with a square stem and spade-shaped leaves with purple undersides.

White-purple flowers bloom July through August on spikes up to 6 inches long. Dry stalks stay upright through winter and heads rattle with seeds.



A distinctive feature of the beefsteak plant is the underside of its leaves, which can be dark purple or green with pink-tinged veins. The leaves also emit a strong mint odor when crushed.

### Why It's Bad

Beefsteak invades roadsides, woodland edges, pastures, and other areas of disturbed soil, displacing desirable native vegetation. It can cause respiratory distress or death to cows and small ruminant livestock.

### How to Control It

It can be pulled, dug, mowed, or sprayed. Plants remain toxic to livestock even after treatments, including in hay.

**Mechanical:** Hand pull, dig up, or mow before plants go to seed. Repeat if needed.

**Chemical:** Spray in spring and early summer using nonselective herbicides with glyphosate or broadleaf-selective herbicides, such as those with 2,4-D or triclopyr. Always follow label instructions.

## WHAT IS IT? CAROLINA MANTIS

Despite its name, the Carolina mantis is the most common mantis found across North America. This native species is a gardener's best friend, consuming hordes of pests that would otherwise destroy produce. The Carolina mantis sits in wait for its prey, keeping its front legs in a prayerlike pose. Then those legs strike, securing the prey until feeding ensues. This species is much smaller than other mantises, only reaching about 2.5 inches.





# CWD

## Info to Know for the 2024–2025 Deer Season

**Chronic wasting disease (CWD) is a deadly, infectious disease in deer and other members of the deer family (cervids) that eventually kills all animals it infects.**

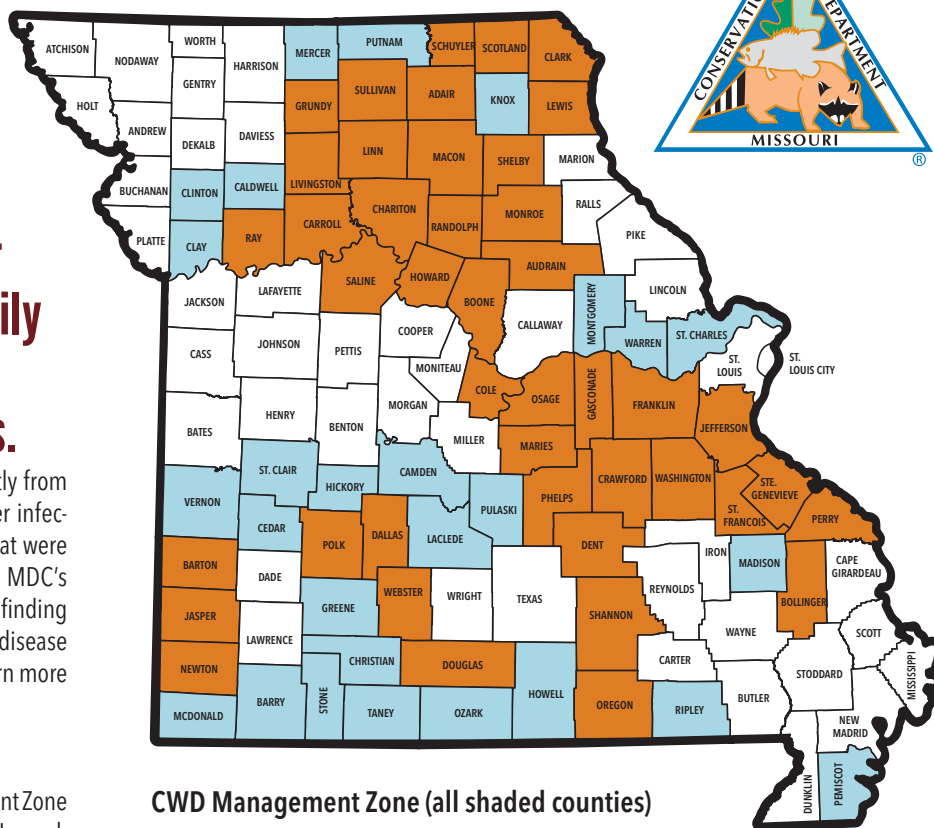
There is no vaccine or cure. CWD is spread directly from deer to deer and indirectly when deer encounter infectious prion proteins (which cause the disease) that were shed into the environment by an infected deer. MDC's goal is to limit the spread of CWD in Missouri by finding new cases as early as possible and managing the disease to slow its spread to more deer in more areas. Learn more at [mdc.mo.gov/cwd](https://mdc.mo.gov/cwd).

### CWD Management Zone

Eighteen counties are new to the CWD Management Zone this year: Audrain, Boone, Cole, Dent, Douglas, Howard, Lewis, Maries, Monroe, Newton, Osage, Phelps, Randolph, Saline, Scotland, Shannon, Shelby, and Webster. Grain, salt products, minerals, and other consumable products used to attract deer are prohibited year-round within the CWD Management Zone. For exceptions, see the *2024 Fall Deer & Turkey Hunting Regulations and Information* booklet at [short.mdc.mo.gov/ZXv](https://short.mdc.mo.gov/ZXv).

### Mandatory CWD Sampling Nov. 16 and 17

Hunters who harvest a deer in designated CWD Management Zone counties during Nov. 16–17 must take their deer, or the head, on the day of harvest to one of MDC's CWD mandatory sampling stations located in the zone. Hunters must follow carcass movement restrictions (see *Carcass Movement Restrictions*). Sampling and test results are free (see *CWD Test Results*). Find sampling locations online at [mdc.mo.gov/cwd](https://mdc.mo.gov/cwd) or from MDC's *2024 Fall Deer & Turkey Hunting Regulations and Information* booklet.



### CWD Management Zone (all shaded counties)

- In these counties, if you harvest a deer during Nov. 16–17, 2024, you must take it (or the head) on the day of harvest to a mandatory CWD sampling station.
- CWD sampling is not mandatory in these counties.

### Voluntary CWD Sampling All Season Statewide

MDC will again offer statewide voluntary CWD testing of harvested deer free of charge during the entire deer season at select locations throughout the state. Find locations and more information online at [mdc.mo.gov/cwd](https://mdc.mo.gov/cwd) or by contacting an MDC regional office.

### CWD Test Results

Test results for CWD-sampled deer are free and will be available within four weeks after the sampling date. Get test results online at [mdc.mo.gov/CWDTestResults](https://mdc.mo.gov/CWDTestResults).

### CWD Portion of Firearms Deer Season

To allow more hunting opportunity to help slow the spread of CWD, the CWD portion of firearms deer season (Nov. 27–Dec. 1) will be open in CWD Management Zone counties. For permits, limits, and other details, see MDC's *2024 Fall Deer & Turkey Hunting Regulations and Information* booklet.

## Carcass Movement Restrictions

These regulations, included in the *Wildlife Code of Missouri*, are part of MDC's ongoing efforts to slow the spread of CWD.

### For hunters who harvest deer in Missouri from a CWD Management Zone county:

- Deer must be Telechecked before any parts of the carcass may be transported out of the county of harvest.
  - Whole carcasses of deer (and parts that include the brain or spinal column) may not be transported out of the county of harvest, except that:
    - ▶ Deer carcasses may be delivered to a licensed meat processor within 48 hours of leaving the county of harvest.
    - ▶ Deer heads may be delivered to a licensed taxidermist within 48 hours of leaving the county of harvest.
    - ▶ Deer heads may be delivered to an MDC-approved CWD sampling location within 48 hours of leaving the county of harvest.
- Note:** During Nov. 16–17, hunters who harvest deer in designated CWD Management Zone counties must take the deer (or its head) on the day of harvest to a CWD mandatory sampling station.
- The following carcass parts may be transported outside of the county of harvest without restriction:
    - ▶ Meat that is cut and wrapped or that has been boned out
    - ▶ Quarters or other portions of meat with no part of the spinal column or head attached
    - ▶ Hides from which all excess tissue has been removed
    - ▶ Antlers or antlers attached to skull plates or skulls cleaned of all muscle and brain tissue
    - ▶ Finished taxidermy products

### For hunters bringing deer and other cervids into Missouri from another state:

- Hunters may not transport whole cervid (deer, elk, moose, caribou) carcasses into the state.
- Heads from cervids with the cape attached and no more than 6 inches of neck attached may be brought into Missouri only if they are delivered to a licensed taxidermist within 48 hours of entering Missouri.
- The following cervid parts can be transported into Missouri without restriction:
  - ▶ Meat that is cut and wrapped or that has been boned out
  - ▶ Quarters or other portions of meat with no part of the spinal column or head attached
  - ▶ Hides from which all excess tissue has been removed
  - ▶ Antlers or antlers attached to skull plates or skulls cleaned of all muscle and brain tissue
  - ▶ Upper canine teeth
  - ▶ Finished taxidermy products

### For taxidermists and meat processors:

- Taxidermists and meat processors throughout the state are required to dispose of deer, elk, and other cervid parts not returned to customers in a permitted sanitary landfill or transfer station. This requirement does not apply to hides from which all excess tissue has been removed.
- Proof of disposal must be retained for 12 months for meat processors and for three years for taxidermists.

## Share the Harvest

Missouri's Share the Harvest program helps deer hunters donate venison to those in need. To participate, take harvested deer to an approved meat processor and let the processor know how much venison is to be donated. If you are donating a deer to Share the Harvest, it must be tested for CWD if it was harvested within the CWD Management zone. However, if the deer was harvested outside the CWD Management Zone, testing for CWD is not required. Learn more online at [mdc.mo.gov/share](https://mdc.mo.gov/share) or from MDC's 2024 Fall Deer & Turkey Hunting Regulations and Information booklet.

## More Information

Get more information on CWD regulations and other CWD information online at [mdc.mo.gov/cwd](https://mdc.mo.gov/cwd) or from MDC's 2024 Fall Deer & Turkey Hunting Regulations and Information booklet, available where permits are sold and online at [short.mdc.mo.gov/ZXv](https://short.mdc.mo.gov/ZXv).

## Help Fight CWD!

CWD is one the greatest conservation challenges of our time and the most significant threat facing Missouri's deer population since the species almost disappeared from the state a century ago. MDC's goal is to slow the spread of CWD as much as possible to buy science time to develop other management tools and potentially a cure. Hunters and landowners are critical partners in the fight against CWD and can assist MDC by continuing to deer hunt, participating in CWD sampling, following regulations designed to slow the spread of CWD, and cooperating with targeted removal efforts.





# DEEP DIVES AND LONG TAKE-OFFS

Regular visitors to Missouri, diving ducks add to wetland waterfowl diversity

by Angie Daly Morfeld



A common merganser  
takes flight.

PHOTOGRAPH BY  
NOPPADOL PAOTHONG

**T**he duck test theorizes that if it looks like a duck, swims like a duck, and quacks like a duck, then it's probably a duck.

But what if that duck suddenly disappears below the water's surface?

Then it's probably a diving duck.

Diving ducks, also called sea ducks, are typically found in deep, open waters, such as large rivers and lakes, coastal bays, and inlets. They float low on the waters they frequent, sitting with their tail feathers on or in the water.

As their name suggests, they dive for their food. The weight of their heavy bodies helps them stay below the water's surface as they forage for plants, clams, insects, and other waterlogged delicacies. The position of their webbed feet — further back on their bodies — makes them more streamlined when they dive. Their powerful feet propel them through the water as they hunt for another favorite food item — fish.

Divers have smaller wings, so they need room to take off and land. They slide onto a lake or river with a long splashing glide. To take flight, divers must run and flap their wings to gain enough speed to lift off.

Missouri hosts a number of diving ducks in the spring and again in the fall, between August and December, as they make their way south along the Mississippi flyway. Some are here for just a short time — to grab a bite and be on their way. Others stay throughout the winter. Whether they stay or go, you can find these in Missouri's wetlands and on other bodies of water across the state.



To learn more about Missouri's wonderful waterfowl, visit our online *Field Guide* at [mdc.mo.gov/field-guide](https://mdc.mo.gov/field-guide).



## BUFFLEHEAD

*Bucephala albeola*

**Length:** Male 15 inches, female 13 inches

**Weight:** Male 1.1 pounds, female 0.7 pounds

**Status:** Uncommon migrant; rare winter resident

**Peak Viewing:** March through mid-April and November

**Food:** Buffleheads primarily feed on a variety of invertebrates, including insects, mollusks, and crustaceans. They also eat plant matter, such as pondweeds and seeds.

Buffleheads are small, compact ducks with large, rounded heads. The male has a black back and a puffy black head with a white patch behind the eyes. The female is brown with a white belly. Buffleheads are usually silent.



## CANVASBACK

*Aythya valisineria*

**Length:** Male 21 inches, female 20 inches

**Weight:** Male 2.7 pounds, female 2.5 pounds

**Status:** Common migrant

**Peak Viewing:** Spring and fall migration

**Food:** Although their diet is primarily aquatic vegetation, canvasbacks are considered omnivorous. They eat significant amounts of insects and mollusks.

The male canvasback has a chestnut head and a sloping, blackish bill, black chest, and a white body. The female is a more muted light brown with a grayish back and sides. The female's voice is a low growl, while males hoot and squawk.



## REDHEAD

*Aythya americana*

**Length:** Male 20 inches, female 19 inches

**Weight:** Male 2.4 pounds, female 2.1 pounds

**Status:** Uncommon migrant

**Peak Viewing:** Spring and fall migration

**Food:** Redheads dive to feed on seeds, rhizomes, tubers of pondweeds, wild celery, water lilies, grasses, and wild rice. They also feed on mollusks, aquatic insects, and small fish.

The adult male redhead has a chestnut-red head, black breast and rear end, and gray body and wing stripes. The bill is blue with a black tip. The female is brown with a darker back, a black-tipped blue bill, a gray wing stripe, and a buffy eye ring and face. The female voice is a soft *greb*, while the male's is a loud, nasal *waah*.





## RING-NECKED DUCK

*Aythya collaris*

**Length:** Male 17 inches, female 16.6 inches

**Weight:** Male 1.6 pounds, female 1.5 pounds

**Status:** Common migrant; winter resident in southern Missouri

**Peak Viewing:** Spring and fall migration

**Food:** Ring-necked ducks prefer shallow water, feeding on a variety of aquatic plants, including pondweeds, water milfoil, hydrilla, sedges, grasses, and wild rice. They also eat aquatic insects, snails, and clams.

Ring-necked ducks get their name from a faint brownish ring around the base of their necks. The adult male is dark, with well-defined gray sides and a white stripe between the sides and the breast. His bill is gray with a white ring and a black tip. The female is dark brown with light brown sides and white eye rings. The female's voice is a low-pitched *kerrp*, while the male's is a thin, low-pitched, nasal whistle.



## HOODED MERGANSER

*Lophodytes cucullatus*

**Length:** Male 18.1 inches, female 17 inches

**Weight:** Male 1.6 pounds, female 1.2 pounds

**Status:** Uncommon transient; rare summer and winter resident

**Peak Viewing:** Spring and fall migration

**Food:** Hooded mergansers dive in fresh water to feed on small fish, crayfish and other crustaceans, and aquatic insects.

The adult male hooded merganser has a black head, neck, and back. The black-margined white crest is very distinct. The female is brown with a rust-colored crest. Their head crests may be raised to a nearly circular shape or lowered so that it trails behind their heads. The merganser's bill is slim and serrated, with a hooked tip. For the male, the bill is dark, but the female's is bicolored. The male gives a low, froglike sound, while females give a hoarse *gak*.



## COMMON MERGANSER

*Mergus merganser*

**Length:** Male 25.5 inches, female 22.9 inches

**Weight:** Male 3.64 pounds, female 2.73 pounds

**Status:** Common transient; winter resident; accidental summer visitor

**Peak Viewing:** Spring and fall migration, winter

**Food:** Common mergansers eat mainly fish, amphibians, crustaceans, mollusks, and other invertebrates. They hunt fish, propelled by their powerful webbed feet, and snag their prey, using their serrated bill.

Common mergansers have a long, slender, serrated, red or orange bill with a wide base. The male has a green head, a mostly white body, and a black and gray back. The female merganser has a gray body with a rusty head, sharply defined against her white neck. Their voice is a hoarse croaking *car-r-r-r* or rapid cackling notes.



## COMMON GOLDENEYE

*Bucephala clangula*

**Length:** Male 19 inches, female 17 inches

**Weight:** Male 2.3 pounds, female 1.7 pounds

**Status:** Common migrant; winter resident

**Peak Viewing:** Mid-November through the end of April

**Food:** Common goldeneyes typically forage on the bottom of waterways for aquatic invertebrates, crayfish, fish, and plants.

Common goldeneyes have compact bodies with large heads, relatively small, narrow bills, and short tails. The male has a dark head and back, with white sides and breast. There is a white oval spot on each cheek, between the bill and bright yellow eyes. The female has a dark bill with yellow near the tip. Her head is brown, and her body is gray with a white collar. The female's eyes are a more subdued pale yellow or white. Males whistle and rattle, while females make a low, grating *au, au*.



A common goldeneye takes a dive to search for fish.



Lesser scaup fly at Eagle Bluffs Conservation Area, one of the many places in Missouri to observe ducks.



## RUDDY DUCK

*Oxyura jamaicensis*

**Length:** Male 15.4 inches, female 15 inches

**Weight:** Male 1.20 pounds, female 1.19 pounds

**Status:** Common migrant; rare summer visitor

**Peak Viewing:** Mid-February to mid-May; late October to mid-December

**Food:** Ruddy ducks feed on both plants and invertebrates. During migration, they feed mainly on plants. As with other birds, during breeding season, they need more protein, so they feed on invertebrates, including shellfish, crustaceans, and aquatic insects.

Ruddy ducks are small with stiff tail feathers that are usually cocked upward. The male ruddy duck is dark cinnamon with a black head, white patches on its cheeks, and a blue bill. The female is brownish with a dark line through her cheeks. Both become duller in the winter. They are usually silent except during courtship when they are heard rapidly sputtering *chuck-chuck-chuck-chuck, chuck, churrrr*.



## GREATER SCAUP

*Aythya marila*

**Length:** Male 18.6 inches, female 17 inches

**Weight:** Male 2.32 pounds, female 2.15 pounds

**Status:** Rare transient and winter resident; accidental summer visitor

**Peak Viewing:** Spring and fall migration

**Food:** Scaup — pronounced *skopp* — may be related to the word *scalp*, akin to terms in northern European languages that mean “shell” or “shellfish bed.” In some regions, scaups feed on clams, oysters, and mussels. In freshwater, greater scaups feed on snails, crayfish, insects, and aquatic vegetation.

The adult male’s head is rounded and has a green sheen. The bill is bluish with a hard-to-see broad black nail at the tip. The female is brown, with white around the base of the bill. Scaups are mostly silent. The female makes a hoarse *can-can-can*.



## LESSER SCAUP

*Aythya affinis*

**Length:** Male 17 inches, female 16.5 inches

**Weight:** Male 1.8 pounds, female 1.6 pounds

**Status:** Common migrant

**Peak Viewing:** Spring and fall migration

**Food:** Lesser scaup dive to feed on seeds of pondweeds, wigeon grass, wild rice, sedges, and bulrushes. They also feed on crustaceans, mollusks, aquatic insects, and small fish.

The adult male’s head is angular or peaked and has a purple sheen. The male lesser scaup also has a smaller bill with a small nail at the tip. The female is brown, with white around the base of the bill. Scaups are mostly silent. The female makes a hoarse *can-can-can* or a barking *garf, garf, garf* that is higher and softer than the female greater scaup’s. The male has a high-pitched whistle.

Angie Daly Morfeld is the editor of the Missouri Conservationist. In her free time, she enjoys lazy days in her hammock and exploring wild places with her dogs.





# Hidden Gems

SOMETIMES THE BEST  
CONSERVATION AREAS ARE RIGHT  
IN YOUR OWN BACKYARD

## THE FALL SEASON

in Missouri is arguably one of the best times to get outside and discover nature. With near-perfect cool, crisp temperatures and foliage aglow in shades of reds, oranges, and yellows, you could not dream of better days spent in the outdoors. And thanks to MDC's over 1,000 areas, you don't have to go far to experience it. No matter where you are located in the state, there is probably an area near you, maybe one that is a well-kept secret. It's a great time to explore. What will you discover?

**Englemann Woods  
Natural Area**

**PHOTOGRAPH BY  
DAN ZARLENGA**



## Engelmann Woods

### NATURAL AREA

FRANKLIN COUNTY | BY DAN ZARLENGA

Whenever I think of Engelmann Woods Natural Area (NA), brilliant arrays of ephemeral spring wildflowers always come to my mind. I need to remember that the area offers an amazing autumn adventure, too.

Nestled in the Ozarklike hills of Franklin County, the 148-acre Engelmann Woods NA is just south of St. Albans. Engelmann is an excellent example of a rich, old-growth forest adjacent to the Missouri River.

Prominent trees include red oak, white oak, white ash, basswood, and sugar maple. The largest trees can grow 3 feet in diameter, 100 feet tall, and approach 200 years in age. It's probably why Engelmann Woods NA puts on an incredible show in the fall. Visit from about mid-October through early November and you'll be dazzled by splendid colors everywhere you turn. Orange, red, brown, yellow, green ... a magnificent pallet of autumn hues.

Engelmann Woods NA has a 2-mile natural surface hiking trail. While not extremely long, the journey meanders along steep ridges and down into a deep creek bed. It's enough to get the heart pounding, especially if hiked at a brisk speed. But with its modest length, taking the trail more slowly can still be a relaxing walk.

As someone who enjoys photography, I find Engelmann's varied terrain creates fascinating layers in color, accentuated by textures of wood. Intriguing geometries abound, from stately trunks standing proudly erect, defying the challenge of the elements, to fallen logs that have surrendered to them.

Engelmann Woods NA is 3 miles east of Labadie on Route T. From the Highway 100/Route T (St. Albans Road) junction in Wildwood, take Route T west about 6 miles. Visitors should note that the parking lot is small, so consider carpooling if going in a larger group.



For more information about Engelmann Woods NA, visit [short.mdc.mo.gov/4Ln](https://short.mdc.mo.gov/4Ln).

## Bicentennial

### CONSERVATION AREA

NEWTON COUNTY | BY FRANCIS SKALICKY

My hiking experiences are enhanced by areas with interesting historical back stories. In addition to enjoying the beauty of the area, I always try to envision what the area looked like in its past form.

With that in mind, I headed for MDC's 721-acre Bicentennial Conservation Area (CA) in Newton County. This area, on the outskirts of Neosho, is known to the locals for relaxing hikes and wildlife viewing on its approximately 6 miles of trails. Unbeknownst to many, it also has ties to a well-known military base and one of the country's best-known military-themed comic strips.

Bicentennial CA comprises part of what was once the 60,000-acre Camp Crowder, also known as Fort Crowder. It was a prominent U.S. Army base during World War II, in operation from the early 1940s until the mid-1950s. Among the thousands of soldiers who

For information about Bicentennial CA, visit [short.mdc.mo.gov/4LE](https://short.mdc.mo.gov/4LE).



ENGELMANN WOODS: DAN ZARLENGA; BICENTENNIAL: GIST RANCE; FRANCIS SKALICKY



passed through was Mort Walker, creator of the comic strip *Beetle Bailey*. His days at Camp Crowder inspired the comic.

At Bicentennial CA's main parking lot (the area has four), I saw a sign that read, "Mort Walker Trail." Named for the cartoonist, this disability-accessible trail, which is less than a mile in length, provides a glimpse of Camp Swampy, the fictional army base that was home to Beetle Bailey, Sergeant Snorkel, and the strip's other characters. But the area boasts a spring, not a swamp.

There are still a few concrete and stone building foundations sprinkled across the area, reminders of its military days. This mostly forested area is a showcase for beautiful fall colors. Bicycling and horseback riding are allowed on designated trails. The area has a pavilion with picnic tables and primitive camping is allowed on the area.



## *Gist Ranch* CONSERVATION AREA

TEXAS COUNTY | BY FRANCIS SKALICKY

If you're looking for a place that will get you far from the hustle and bustle for a day, MDC's Gist Ranch CA may be the site you seek.

As I walked a multi-use trail that loops across the southern half of the 11,240-acre area in southern Texas County, it occurred to me that this is a slice of remoteness that people outside of the immediate area probably aren't familiar with.

It's located in a part of the state where towns are small and scattered. It's 5 miles west of Summersville and 14 miles southwest of Houston. It's not near a major highway, so, even though the area is large, Gist Ranch CA is off the beaten path.

Therein lies Gist Ranch CA's charm. Except during heavy hunting periods, such as the November firearms portion of the deer season or spring turkey season, visitation to the area is sparse. There are days you may be the only visitor on this primarily forested area that covers approximately 17 square miles. The trail I walked, which is open to bicycles and horses as well, is considered the main trail on the area. However, service roads on other parts of the area that are used by MDC staff (but are not open to public vehicular traffic) also offer nature-viewing opportunities. Put together, the service roads and trails combine for 11.5 miles of trails on the area.

Deer, turkey, and other wildlife populations can be found there. I saw a bald eagle just outside the area, so bring binoculars and keep your eyes open.

Gist Ranch CA has designated camping sites, an unstaffed shooting range, an unstaffed archery range, and two fishing ponds in the northeast corner of the area.



For information about Gist Ranch CA, visit [short.mdc.mo.gov/4oA](http://short.mdc.mo.gov/4oA).





## Brickyard Hill

### CONSERVATION AREA

ATCHISON COUNTY | BY BILL GRAHAM

MDC's Brickyard Hill CA demands choices from a visitor, especially in October. Located in Atchison County in Missouri's far northwest corner near the small town of Watson, just off Interstate 29, nature and scenery are rich where western prairie plant species mingle with eastern woodlands on a great river's edge.

Am I going to fish in the lake or hunt wild turkeys in the forest or try to do both in the same day? Do I make a lung-and-leg challenging uphill and down hike through forest to reach rare loess soil prairie natural areas on the dry, west-facing ridge slopes overlooking the Missouri River valley? Or do I stick to interior forested valleys and ridges?

The relaxing choice when the oaks and hickories are in fall color is a simple hike on the 1.7-mile dirt service road around the 13-acre Charity Lake. The hike is uphill and down on modest slopes, but fairly easy walking most of the way.

Still, fishing is a draw. I recall being with MDC fisheries biologists to measure fish populations, and they found a lot of bass and bluegill. There is a boat launch ramp, electric motors only. I'm looking forward to some kayak fishing there.



For more information about Brickyard Hill CA, visit [short.mdc.mo.gov/4Lu](https://short.mdc.mo.gov/4Lu).

Still on my yet-to-do list is camping at Brickyard Hill CA. Two designated primitive camping areas are on the area, one near the lake and one in the uplands. They're not large and I noticed on a recent visit one was almost full.

But with service roads that also serve as hiking trails through a 2,897-acre conservation area, solitude in the outdoors is easily found.



# Granny's Acres

## CONSERVATION AREA

BENTON COUNTY | BY BILL GRAHAM

Autumn is a fine time for a walk in the woods, and MDC's Granny's Acres CA in Benton County, south of Truman Lake, is a worthy destination. I like it because a walk in the forest and open woodlands is a haven from the busy world of human strife. But also, MDC staff has done a fine job of laying out interesting trails with good signage and maps to guide hikers.

MDC acquired the 351-acre area in the early 1960s. Frequent wildfires once charred the hilly area but did boost diversity in the plant community. MDC foresters are restoring the area's rocky dolomite glades and maintaining the oak and hickory-dominated forest.

Getting there requires a drive down a dirt road to the area's lone parking lot. Then comes a long walk on a service road past an old, flat creek bottom field now planted to natives. When you reach the forest edge, you cross Whig Creek, which may be dry or may have shallow water, weather depending. But then the road leads uphill into forest.

Once you're up the hill and reach the Yellow Loop Trail, directional choices must be made, which lead to intersections with the Blue Loop and Red Loop trails. Signs at intersections keep you posted on where you are on the 4.3-mile trail system. The trails are rocky in places, but most hikers rate them moderate difficulty.

Of course, on an MDC conservation area, you are also free to simply walk through the woods in any direction. I like the freedom to roam at Granny's Acres, on or off trail, in an area where meeting other hikers is infrequent.



For more information about Granny's Acres CA, visit [short.mdc.mo.gov/4L2](https://short.mdc.mo.gov/4L2).



## Edward Anderson CONSERVATION AREA

RALLS COUNTY | BY MADDIE FENNEWALD

Tucked away on the easternmost edge of the state lies a highway of little recognition for its stunning views. Highway 79 is a two-lane road that parallels the Mississippi River as it meanders south from Hannibal toward St. Louis, and travelers who take this scenic route are greeted with the most stunning vistas overlooking the river bluffs. While the drive is beautiful on its own, the opportunity to witness Missouri's natural landscapes does not stop along the highway lines.

Drivers are presented with multiple stopping points along the route as they progress from Hannibal toward St. Louis. Ten miles south of Hannibal along Highway 79 sits Edward Anderson CA, which boasts the highest point in Ralls County. The forested area transitions to a vibrant landscape during the fall season, and it presents visitors with the opportunity to hide themselves away from the busyness of life, even if just for a few moments.

After absorbing the beauty of Anderson CA, travelers can continue south on Highway 79 for 7 miles toward Dupont Reservation CA. Like Anderson CA, this 1,320-acre property is home to a plethora of wildlife thanks to its diverse habitats



For more information about Edward Anderson CA, visit [short.mdc.mo.gov/4LX](https://short.mdc.mo.gov/4LX).

of upland timber, bottomland timber, and grasslands. Visitors are encouraged to use the area's picnic benches to find their mid-day respite from work as they eat their lunch.

For those who find themselves wanting to experience the visual art of a changing fall landscape without having to leave the comfort of their vehicle, Highway 79 and the conservation areas along the route offer the perfect viewing opportunity. With multiple scenic pull-offs and various stopping locations, this well-kept secret of northeastern Missouri should be added to your list of must-see fall landscapes.

## SOUTHEAST REGION

## Red Rock Landing CONSERVATION AREA

PERRY COUNTY | BY JOSH HARTWIG

If the Chester River gauge is sitting at 20 feet or below, I recommend visiting one of MDC's most tranquil historical destinations — Red Rock Landing CA in Perry County.

When accessible by road, the area contains quite a feast for the eyes, including seven ponds, 60 acres of unprotected bottomland fields, and 70 acres of upland fields. MDC purchased this 419-acre timbered property in 1994, chiefly using it as a public fishing access.

Red Rock CA has some of the best remaining riparian habitats in this part of the Mississippi River. MDC Wildlife Management Biologist Keith Cordell said it provides excellent bank fishing for catfish and other big river species.

One of best things I discovered about the area is its ridgetop, which offers several trails for the hiking enthusiast. Once you reach the top, prepare yourself for an instant panoramic view. It's amazing.

The area is like most other forested river hills areas within southeast Missouri, except it has giant, steep river hills. And



To learn more about Red Rock Landing CA, visit [short.mdc.mo.gov/4Ls](https://short.mdc.mo.gov/4Ls).

the proximity to the river is justifiably why fishing is one of the main reasons to visit.

It's also a good birdwatching area since the Mississippi River is a huge corridor for migrating birds. The healthy, riparian forest against the river attracts a lot of neotropical migrants and all kinds of waterfowl you won't see further inland.





Plenty of hunting opportunities are also there, including deer, turkey, and some small game such as rabbit and quail. And you'll even find a camping area with three defined campsites, complete with fire rings, picnic tables, barbecue grills, and gravel pads.

For the hiking novice, the habitat is similar to Trail of Tears State Park. It's stunningly steep, rugged, and is must-see. If you're feeling adventurous, take your bicycle on one of many service roads, but be prepared for a steep bike ride.

## Clifty Creek CONSERVATION AREA

MARIES COUNTY | BY MADDIE FENNEWALD

Picture the leaves crunching beneath your feet as you crest the top of a hill overlooking miles of wooded land in rural Maries County. To your right you look down and see the creek bed of Clifty Creek CA; and to your left, you see hill after hill sporting beautiful, wooded habitat for a variety of native Missouri animals. When you have made it about halfway through the 2.5-mile looped hiking trail on the property, in front of you sits a rock formation that serves as a wonderful resting point for weary hikers to catch their breath while taking in the scenic views surrounding them.

The well-marked trail winds from the parking lot through the creek bed, and to the stunning natural bridge that spans 40 feet and was formed by a tributary

For more information about Clifty Creek CA, visit [short.mdc.mo.gov/4L7](http://short.mdc.mo.gov/4L7).

of Clifty Creek winding through the Gasconade dolomite. Hikers visiting the area can expect a moderately difficult trail that involves minor elevation changes, uneven ground, and a low water crossing depending on the weather. This hike is ideal for the late fall. Once the leaves have fallen from the tree canopy, visitors are able to observe the birds as they flit from branch to branch without any foliage blocking their view.

It is recommended that hikers bring binoculars, water, and snacks for the hike. For those hoping to make a day of the visit, pack a sack lunch and eat on the natural, rock "picnic" area on the backend of the loop. Dress for the weather and take in the wonderful visage of Maries County. ▲

*MDC media specialists Dan Zarlenga, Francis Skalicky, Josh Hartwig, Bill Graham (now retired), and Maddie Fennewald know just where to find the perfect spots to discover nature this fall.*





Like all jumping spiders, the bold jumper (shown here and on Page 23) uses its exceptional eyesight to spot prey.

PHOTOGRAPH BY  
JIM RATHERT





# Life on a Thread

THE ATTACK, WHEN  
IT COMES, IS SWIFT,  
DECISIVE, AND LETHAL

by Matt Seek

*A whisper* on the grass betrays the gathering of feet. A bold pounce bridges the gap between hunter and quarry. Predator and prey tumble over each other, one desperate to escape, the other to restrain. The violence lasts only a second, perhaps two. And then the prey, once so agile and alive, lies still and dead.

The ambush, familiar to anyone who's watched nature documentaries, doesn't occur on an African savanna and isn't perpetrated by a big cat. Instead, the struggle plays out on a single blade of big bluestem, the prey is a flower fly, and the predator is a tiny black jumping spider, no bigger than a pencil eraser.



BOLD JUMPER ON STEM: REBEKAH D. WALLACE, UNIVERSITY OF GEORGIA; BUGWOOD.ORG





**Emerald jumper**

## One Big Family

Imagine you could stuff one of each kind of spider on Earth into a bag. For every eight times you reached inside, you'd likely pull out at least one jumping spider. According to the World Spider Catalog, of the planet's nearly 52,000 species of web-slingers, more than 6,600 are members of the jumping spider family, Salticidae. The family is so large, its species tally outnumbers the combined total of all mammalian species.

Salticidae isn't just the largest spider family, it's also the most cosmopolitan. Wherever in the world you might go, if you look closely enough, you'll probably find a jumping spider looking back at you. Odds are, there's probably one watching you right now.

Jumping spiders are found on every continent except Antarctica, and they inhabit nearly every habitat, from sunbaked deserts to soppy rainforests. In 1924, Richard Hingston, a medic on the British Mount Everest expedition, observed tiny, coffee-brown spiders living among rocks 22,000 feet above sea level. Decades later, his samples were identified as Himalayan jumping spiders, thought to be the world's highest-living spider.

Salticids range in size from tiny jumpers in the genus *Neon*, most of which are no bigger than a flake of coarsely cracked black pepper, to the tropical hunters of the genus *Hyllus*, some of which may grow up to an inch long. A few jumpers are so flamboyantly colored they've been given the moniker "peacock spiders." Others are so perfectly camouflaged you could stare right at one and fail to see it. Some jumpers mimic herbivorous

leaf beetles and use their disguises to dupe unsuspecting prey. Other jumpers mimic biting ants or stinging wasps in an attempt to make would-be predators think twice about making them a snack.

Despite their vast numbers and variety, one trait makes it easy to differentiate a jumping spider from any other kind of arachnid: its eyes.

## Mighty Sight-y

Like most spiders, jumpers have eight eyes. But unlike many of their cousins, jumpers see exceptionally well. And it's the unmistakable arrangement and structure of their eyes that sets salticids apart from other spider families.

In the middle of what you might call a jumper's forehead rest two oversized, alien-looking eyes. On either side of those are two smaller front-facing peepers. The other four eyes are arrayed like running lights — two on the left, two on the right — on the spider's cephalothorax (the front half of the body to which the legs are attached). The middle pair of these "lateral eyes" is indistinct and often hard for amateur spider watchers to spot.

The large principal eyes are fixed to the spider's head like portholes on a ship. A telescopelike tube extends backward from each lens to the spider's retinas. To look left, right, up, or down, the spider moves the "eyepieces" of the telescopes (the retinas), not the portholes. In semi-transparent species, you can watch from overhead and see the tubes shifting around inside the spider's head.

The large eyes empower jumpers with the highest visual resolution of any animal less than 20 millimeters long. In fact, a jumping spider's vision is comparable to much larger animals like pigeons or dogs. But this stunning clarity comes at a cost.

Jumpers, because they essentially see the world through twin telescopes, have an incredibly narrow field of sharp vision. It's like using the beam of a flashlight to explore in the dark — you have no idea what's going on outside that tight circle of light. And that's where the other six eyes come into play.

The lateral eyes aren't nearly as powerful. The world, through their lenses, is blurry and gray. But what they do detect well — in a nearly 360-degree field of vision — is motion. Being able to spot movement approaching from any direction is a huge advantage for a tiny animal that is both predator and prey. The lateral eyes, then, have an important job: They tell the principal eyes where to look. And often what they decide to look at is their next meal.

## Leap of Fangs

Jumping spiders don't weave webs. Instead, they use their keen vision to find prey and then sneak as close to it as they can without being detected. Once they're within range, a jumper gathers its legs and — SPROING! — pounces, catlike, on top of its victim.

Some species — including *Colonus puerperus*, a colorful jumper common in grassy areas throughout Missouri — can



**Common leaf-beetle jumper**



leap horizontally up to 40 body lengths. Jumps from a slightly elevated position can stretch up to 50 body lengths. To achieve the same feat, a 6-foot-tall person would need to broad-jump half the length of a football field.

With such an impressive jumping ability, you'd be forgiven to think that salticids sport Olympian-sized leg muscles. But they don't. Their long-range leaps result from blood pressure, not muscles.

Think of a jumping spider's body as an eight-legged water balloon. Squeeze one part of the balloon, and the other parts expand. By constricting muscles in its cephalothorax, a jumper forces hemolymph (the spider equivalent of blood) quickly into its last pair of legs. In a millisecond, the legs violently extend, and the spider rockets off into space.

Before leaping, jumping spiders secure a strand of silk to their launch site. They use the silk as a dragline to control the length of their jump. And if they overshoot or fall, they can ascend the dragline, like a mountaineer crawling out of a crevasse.

## *Dangerous Dating*

Pouncing on prey and being snack-sized yourself makes a jumping spider's life inherently risky. Yet nothing, perhaps, is riskier than meeting another jumping spider. Protein is protein, and jumpers rarely pass up a meal, even if it happens to be a fellow spider. Female jumpers, on average, tend to be bigger than males. So, when a lovestruck male meets a female, one of two outcomes will occur: He'll either find a mate or have the worst (and last) day of his life.

To tip the odds toward the former, male jumpers perform elaborate dances. From a safe distance, a courting male lifts his front legs and waves them rhythmically. Like male songbirds,

many jumpers are adorned with bright colors, and the raised legs permit a better view of the eye-catching hues on his head and jaws. Once he's caught the female's attention, he might shuffle from side to side or bend his abdomen jauntily to the left or right.

To express his desire (not to be eaten) even more emphatically, a male will tap the ground with his legs and vibrate his abdomen in the spider equivalent of a floor-shaking drum solo. Although spiders lack ears, jumpers hear remarkably well, sensing vibrations up to 10 feet away through bristles on their bodies.

The female studies the male's swagger and listens to his seismic signals for clues as to what kind of offspring he might produce. If she judges his efforts acceptable, she crouches down, vibrates her abdomen, or waves her legs to signal her peaceful intentions. Then the pair mates and, lest there be second thoughts about dinner, the male makes a hasty retreat.

The female forms a tent out of rolled up leaves and silk. Inside, she lays around 100 eggs — more or less, depending on the species — and encases them in a silken cocoon. Some

species lay a single clutch; others lay multiple clutches. Most females guard their egg sacs until they hatch and then watch with oversized eyes as the little spiderlings wander away to take their first leaps.



High-eyelashed jumping spider

## FEAR *Not!*

Jumping spiders are equipped with fangs and venom to subdue prey, but they're not dangerous to anything bigger than a bug. They rarely bite people, and when they do, it usually results in nothing more than a mild sting or an itchy welt.



Cardinal jumper



# SHOW-ME *Jumpers*

Although most jumping spiders live in the tropics, plenty are found in higher latitudes. The American Arachnological Society estimates 344 species live in the U.S. and Canada, and 44 of them have been documented in the Show-Me State. It's likely additional jumpers make their homes in Missouri, based on their occurrence in neighboring states. But because they're small, secretive, and many look nearly identical to each other, some are probably overlooked. Here are a few common, colorful, or notable species to look for.



## BOLD JUMPER

*Phidippus audax*

**Length:** 6-19 millimeters

**Where:** Tree trunks, deck railings, rocky areas

The mouthparts of this large and common jumper are typically iridescent green.



## CARDINAL JUMPER

*Phidippus cardinalis*

**Length:** 6-12 millimeters

**Where:** Prairies, weedy fields

Although cardinal jumpers are harmless, they look remarkably like velvet ants (cow killers), which can deliver an excruciating sting.



## DIMORPHIC JUMPING SPIDER

*Maevia inclemens*

**Length:** 5-10 millimeters

**Where:** Forest edges, often on vines such as poison ivy

True to their name, males of this species occur in two forms: black or light gray. Both forms occur in relatively equal numbers, and females do not seem to prefer one form over the other.



## WHITE-JAWED JUMPING SPIDER

*Hentzia mitrata*

**Length:** 3-5 millimeters

**Where:** Forests

This tiny white jumper, named for its oversized mouthparts, is a canopy dweller, hunting in the uppermost reaches of trees.



## HIGH-EYELASHED JUMPING SPIDER

*Phidippus mystaceus*

**Length:** 6-10 millimeters

**Where:** Backyards, forest edges

Long tufts of hairs on the "forehead" give this spider its common name. The tufts are more prominent on females.



## BANDANA JUMPER

*Habronattus coecatus*

**Length:** 5-8 millimeters

**Where:** On the ground among sticks, rocks, or leaf litter

This species is named for the band of red scales on a male's face. During courtship, males perform complex drum solos, which can consist of up to 20 distinct patterns.





### EMERALD JUMPER

*Paraphidippus aurantius*

**Length:** 7-12 millimeters

**Where:** Woodlands, backyards, inside houses

This colorful jumper's appearance is quite variable, but both males and females usually have green scales on their cephalothorax and abdomen that shine like emeralds.



### COMMON LEAF-BEETLE JUMPER

*Sassacus papenhoei*

**Length:** 3-5 millimeters

**Where:** Dry grasslands

The shape and iridescent scales of this tiny jumper make it look nearly identical to shiny-shelled leaf beetles.



### ANT MIMIC JUMPER

*Synageles noxiosus*

**Length:** 2-4 millimeters

**Where:** Fence posts, trees, stalks of upright vegetation

This jumper lifts its second pair of legs and waves them like antennae to better mimic ants.



**Bold jumper**

## From Fear to Fascination

Most folks spare little love for spiders. Indeed, in the pantheon of creatures with lopsided terror-to-threat ratios, spiders often crouch in their own dark chapel. But spiders in general, and jumpers in particular, are among the best creatures at curtailing truly harmful creepy-crawlies. In a 2017 paper published in *The Science of Nature*, European biologists estimated that the global spider population consumes 400 to 800 *million* metric tons of prey annually. Given that 90 percent of their prey has six legs and is weighed in milligrams rather than kilograms, that's an unfathomable number of disease-carrying insects and agricultural pests that spiders remove — for free — from the environment.

Logic, however, is no match for one's limbic system, and this article isn't likely to mitigate anyone's fear of spiders. But if you're at a point where you want to overcome your arachnophobia, jumping spiders might be a good entry to a little exposure therapy. With their inquisitive eyes, bright colors, and furry bodies, salticids are among the most approachable of arachnids — the Labradoodles of the spider world. Watch one long enough — from a distance of course — and you might find your fear tip slightly toward fascination. ▲

*Matt Seek is the editor of Xplor, MDC's magazine for kids. He thinks jumping spiders are cute and cool, but he realizes not everyone shares this opinion. He hopes this article won't cause lasting trauma.*



# Get Outside

in OCTOBER →

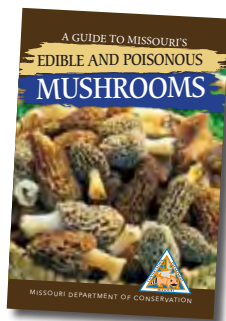
Ways to connect with nature

Jack-o'-lantern mushroom (poisonous)

Hen of the woods (edible)

## Nature Gets Halloween Ready

October is the month for Halloween, and Missouri outdoors is ready. You may come across jack-o'-lantern mushrooms while you are hiking in the woods. These mushrooms form showy orange clusters at the bases of trees. These are poisonous, so just enjoy them for their looks and their timely name. If you are in the woods looking for edible mushrooms, we suggest hen of the woods. For more information, consult *A Guide to Missouri's Edible and Poisonous Mushrooms* at [short.mdc.mo.gov/ZNf](https://short.mdc.mo.gov/ZNf).



## Nature Gets Colorful

Fall color peaks around mid-October for most of the state. It's a great time to get outside and enjoy the beauty of sugar maples, sweet gums, dogwoods, white oaks, and more. But while you are on your fall hike admiring the tree canopies, be sure to look down and appreciate the colors also coming from fall flowers. These flowers provide late-season nectar for pollinators and hummingbirds as they fuel up for their long journeys south. Some flowers to look for include asters, cardinal flower, showy partridge pea, great blue lobelia, native goldenrods, rough blazing star, and more.

VIRTUAL

## HIKING: Where Can I Backpack?

Wednesday • Oct. 9 • 12-12:30 p.m.

Online only.

Registration required by Oct. 8. To register, call 888-283-0364 or visit [short.mdc.mo.gov/4bn](https://short.mdc.mo.gov/4bn).

All ages

Fall is coming and with the cooler weather and leaves beginning to change color, now is a great time to get out and hike. Our conservation areas have miles of hiking trails, and we will discuss areas throughout the state where you can hike and see our wonderful outdoors.

### Natural Events to See This Month

Here's what's going on in the natural world.



Green-winged teal migration is at its peak.



Fox squirrel

Fox and gray squirrels gather nuts for winter.

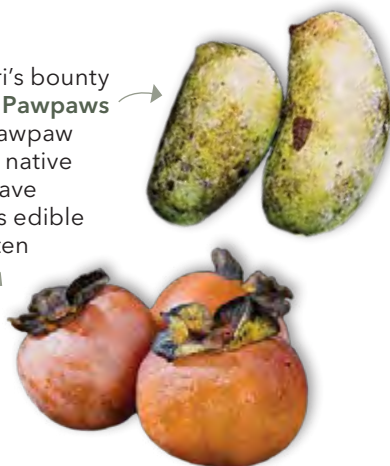


Indian pipe blooms.



## Nature Gets Ripe

If you enjoy working with Missouri's bounty in the kitchen, this is your month. **Pawpaws** and persimmons are both ripe. Pawpaw trees are increasingly popular for native landscaping and fruit trees and have become one of the top choices as edible native trees. The sweet fruit is eaten raw or baked. **Persimmons** are best when they've gotten mushy, but you must find them before raccoons, squirrels, and opossums. For recipe ideas, visit [short.mdc.mo.gov/4mN](https://short.mdc.mo.gov/4mN).



## Nature Gets Loud

Fall has a soundtrack and it's led by a choir of chirping field and house crickets and several species of katydids. Field and house crickets set the mood for a quiet autumn evening while common true katydids, singing high in the treetops, join in the chorus until cool weather causes them to drop to the ground where they join other species of katydids. They'll sing until the first frost. Get out, enjoy a campfire, and listen to the cool sounds of fall.

### ST. LOUIS REGION

## Fall Frolic

Sunday • Oct. 20 • 1-5 p.m.

Tower Grove Park, Roman Pavilion

4378 Northwest Drive, St. Louis, MO 63110

Registration not required. For more information, visit [short.mdc.mo.gov/4b7](https://short.mdc.mo.gov/4b7).

All ages

Have you ever taken a stroll through Tower Grove Park and an animal passes by unexpectedly – on the ground, in a tree, or up in the sky? Did you know that for a park in the city, Tower Grove Park hosts a wide variety of urban wildlife, just within the 289-acres of land?

Join MDC and Tower Grove Park to discover all the flora and fauna that call the park home through autumn-centric activity stations and wildlife encounters. Begin at the Information/Passport Station located in front of the fountain to pick up your passport and a map of the event. Visit the interactive activity stations from various organizations from around St. Louis to learn fun information about plants, animals, and ways to explore nature in our urban areas. We'll have photo ops with folks in animal costumes, live music, campfire with s'mores and other snacks, face painting, and more.



## SIMPLE OUTDOOR MOMENTS



## WRITE, DRAW, OR JOURNAL

Spending time in nature  
is never wasted.

## FIND A PLACE TO GO.

Download the free  
MO Outdoors app.





# Places to Go

## OZARK REGION

### Birch Creek Conservation Area

A place of fall colors

by Larry Archer

✧ If Birch Creek Conservation Area (CA) in October were a box of crayons, it would go heavy on the traditional reds, oranges, and browns of fall, but one would also want to be aware of the other color in the box — black.

Located on more than 5,600 acres in Shannon County, Birch Creek CA is completely forested, giving it plenty of fuel for showy fall foliage, said retired MDC Forester Steve Paes.

"It is 100 percent forested, there are no fields," Paes said. "The last week of October is the height of tree color."

The other color — black — has a history at Birch Creek CA, but don't count on seeing it.

"There are black bears there," he said. "When we did bear trapping, they were caught there, and there have been some known dens. So, there are bears. Are you likely to see one? No, I've never seen one."

The area allows open camping and has more than 8 miles of roads and trails open to hiking and biking, so taking steps to limit interactions with black bears is strongly advised. Suggestions for camping and hiking in bear country are available online at [short.mdc.mo.gov/4bQ](https://short.mdc.mo.gov/4bQ).



Birch Creek CA's heavily forested acreage offers more than 8 miles of trails and roads open to hiking and biking.

"It's fairly level, but there's a pretty steep terrain around Birch Creek itself."

—Retired MDC Forester Steve Paes

DAVID STONNER





## BIRCH CREEK CONSERVATION AREA

consists of 5,645.9 acres in Shannon County.  
From Birch Tree, take Hwy 99 south 6 miles.

36.925, -91.4941

[short.mdc.mo.gov/4bG](http://short.mdc.mo.gov/4bG) 417-256-7161

### WHAT TO DO WHEN YOU VISIT



**Biking** Includes 8.2 miles of improved, service, and unimproved roads allowing bikes year-round.



**Birdwatching** Included in the National Audubon Society's Eleven Point Watershed Important Bird Area ([short.mdc.mo.gov/4EV](http://short.mdc.mo.gov/4EV)). The eBird list of birds recorded at Birch Creek CA is available at [short.mdc.mo.gov/4bc](http://short.mdc.mo.gov/4bc).



**Camping** Open camping.



**Hunting Deer and turkey**  
Regulations are subject to annual changes. Refer to MDC's regulation page online at [short.mdc.mo.gov/Zjw](http://short.mdc.mo.gov/Zjw).

Also **bear** and **squirrel**



**Trapping** Special use permit required.

### DISCOVER MO OUTDOORS

Users can quickly and easily find outdoor activities close to home, work, or even while traveling with our free mobile app, MO Outdoors. Available in Android or iPhone platforms at [mdc.mo.gov/mooutdoors](http://mdc.mo.gov/mooutdoors).



### WHAT TO LOOK FOR WHEN YOU VISIT



American black bear



Spotted salamander



Gray treefrog



Black-throated green warbler





## Wheel Bug

*Arilus cristatus*

Status	Size	Distribution
Common	Length: to 1½ inches	Statewide

**K**nown as North America's largest assassin bug, wheel bugs are easily identified by the coglike "wheel" on their backs. Adult wheel bugs are usually gray or brownish, but the immature nymphs are red with black legs, and can look antlike or spiderlike.

Wheel bugs fly noisily and clumsily. They prowl around flowers, gardens, trees, and grassy areas, hunting other insects. They sometimes land on people but can be brushed off easily if they do not fly away on their own. Crushing or slapping at them generally causes them to bite.



A wheel bug nymph preys on a Japanese beetle.

**Did You Know?**  
Handling wheel bugs is not recommended, as they can inflict a very painful bite.



### LIFE CYCLE

Adults mate in autumn, and the females lay six-sided clusters of cylindrical brown eggs on solid objects, like trees. Hatchlings emerge in spring and grow slowly, taking months to mature. Around midsummer, they emerge from their final molt as mature winged adults. Only the adults possess the wheel-like structure on the back.



### FOODS

Wheel bugs have strawlike mouthparts adapted for sucking juices — or nutrients — from their prey. A wheel bug bites its prey, delivering a subduing venom that causes the prey's tissues to liquefy. The "meat" of the insect can then be sucked up through the wheel bug's strawlike beak.



### HUMAN CONNECTIONS

Because wheel bugs prey voraciously on other insects, including many pest species, such as Japanese beetles, they are generally considered a beneficial natural pest control.



# Outdoor Calendar

❖ MISSOURI DEPARTMENT OF CONSERVATION ❖



## ATTENTION DUCK HUNTERS!

We need your help! MDC is sending out surveys to some duck hunters by mail or email, so please be on the lookout this fall. Your responses to these surveys will inform changes to future zone boundaries and season lengths, which will be in place for the next five years, starting with the 2026-2027 season. If you receive a survey, please fill it out and return it to us. Your opinions matter. If you have any questions, please call 573-815-7900, ext. 2890.

## FISHING

### Black Bass

Impounded waters and non-Ozark streams:  
Open all year

Most streams south of the Missouri River:

- ▶ Catch-and-Keep:  
May 25, 2024–Feb. 28, 2025

### Bullfrog, Green Frog

June 30 at sunset–Oct. 31, 2024

### Nongame Fish Giggling

Streams and impounded waters,  
sunrise to midnight:  
Sept. 15, 2024–Feb. 15, 2025

### Paddlefish

On the Mississippi River:  
Sept. 15–Dec. 15, 2024

### Trout Parks

State trout parks are open seven days a week  
March 1 through Oct. 31.

Catch-and-Keep:

March 1–Oct. 31, 2024

Catch-and-Release:

Nov. 8, 2024–Feb. 10, 2025

## TRAPPING

### Opossum, Raccoon, Striped Skunk

Only foot-enclosing traps and  
cage-type traps may be used.

Aug. 1–Oct. 15, 2024

Nov. 15, 2024–Feb. 28, 2025

*\*Only hunters selected through a random drawing  
may participate in these hunting seasons.*

For complete information about seasons, limits,  
methods, and restrictions, consult the *Wildlife  
Code of Missouri* at [short.mdc.mo.gov/Zib](http://short.mdc.mo.gov/Zib).  
Current hunting, trapping, and fishing regulation  
booklets are available from local permit vendors  
or online at [short.mdc.mo.gov/ZZf](http://short.mdc.mo.gov/ZZf).

## HUNTING

### Black Bear\*

Oct. 21–30, 2024

### Bullfrog, Green Frog

June 30 at sunset–Oct. 31, 2024

### Coyote

Restrictions apply during April, spring turkey  
season, and firearms deer season.

Open all year

### Crows

Nov. 1, 2024–March 3, 2025

### Deer

Archery:

Sept. 15–Nov. 15, 2024

Nov. 27, 2024–Jan. 15, 2025

Firearms:

- ▶ Early Antlerless Portion  
(open areas only): Oct. 11–13, 2024

- ▶ Early Youth Portion (ages 6–15):  
Nov. 2–3, 2024

- ▶ November Portion:  
Nov. 16–26, 2024

- ▶ CWD Portion (open areas only):  
Nov. 27–Dec. 1, 2024

- ▶ Late Youth Portion (ages 6–15):  
Nov. 29–Dec. 1, 2024

- ▶ Late Antlerless Portion (open areas only):  
Dec. 7–15, 2024

- ▶ Alternative Methods Portion:  
Dec. 28, 2024–Jan. 7, 2025

### Doves

Sept. 1–Nov. 29, 2024

### Elk\*

Archery:

Oct. 19–27, 2024

Firearms:

Dec. 14–22, 2024

### Groundhog (Woodchuck)

May 6–Dec. 15, 2024

### Opossum, Raccoon, Striped Skunk

Aug. 1–Oct. 15, 2024

Nov. 15, 2024–Feb. 28, 2025

### Pheasant

Youth (ages 6–15):

Oct. 26–27, 2024

Regular:

Nov. 1, 2024–Jan. 15, 2025

### Quail

Youth (ages 6–15):

Oct. 26–27, 2024

Regular:

Nov. 1, 2024–Jan. 15, 2025

### Rabbits

Oct. 1, 2024–Feb. 15, 2025

### Sora, Virginia Rail

Sept. 1–Nov. 9, 2024

### Squirrels

May 25, 2024–Feb. 15, 2025

### Turkey

Fall Archery Portion:

Sept. 15–Nov. 15, 2024

Nov. 27, 2024–Jan. 15, 2025

Fall Firearms Portion:

- ▶ Fall: Oct. 1–31, 2024

### Waterfowl

See the Migratory Bird and Waterfowl  
Hunting Digest or visit [short.mdc.mo.gov/ZZx](http://short.mdc.mo.gov/ZZx)  
for more information.

### Wilson's (Common) Snipe

Sept. 1–Dec. 16, 2024

### Woodcock

Oct. 18–Dec. 1, 2024





*Serving nature and you<sup>®</sup>*



**Follow us  
on Instagram**

@moconservation

Lean into fall. Get outside and experience Missouri's fall color season. Take a hike in the woods, drive along back roads, or float along a river with views of forested bluffs. There's no wrong way to take in this show. What will you discover?

📷 by **Noppadol Paothong**

**Free to Missouri households**

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